

Claims

1. Use of a soluble form of a member of the CD83 family of proteins (soluble CD83 protein), a fragment, a dimeric form and/or a functional derivative thereof, for the production of a medicament for the treatment or prevention of a disease or medical condition caused by the dysfunction or undesired function of a cellular immune response involving dendritic cells, T cells and/or B cells.
2. The use of claim 1 wherein the soluble CD83 protein comprises the extracellular domain of the CD83 protein or a fragment or functional derivative thereof, preferably comprises amino acid residues 20 to 144 of SEQ ID NO:2 or a fragment or functional derivative thereof.
3. The use of claim 2, wherein the soluble CD83 protein further
 - (a) has one or more amino acid residues derived from the neighbouring intracellular domain at its C-terminus, preferably the soluble CD83 protein comprises amino acid residues 20 to 145 of SEQ ID NO:2; and/or
 - (b) has functional sequences attached to its N-terminus, preferably functional sequences of up to 10 amino acid residues, and most preferably carries at the N-terminus the additional amino acids Gly-Ser-Pro-Gly.
4. The use of claim 2, wherein the soluble form of the CD83 protein comprises amino acid residues 1 to 130 of SEQ ID NO:8.
5. The use of claim 1, wherein the soluble CD83 protein is a dimer, preferably a homodimer connected through one or more of the cysteine residues of the monomeric form of the soluble CD83 protein.
6. The use of claim 5, wherein the soluble CD83 protein is as defined in claims 2 to 4 and/or the homodimer is connected through the fifth cysteine residue of the monomeric form of the soluble CD83 protein.

7. The use of claim 1, wherein the soluble CD83 protein is a monomeric CD83 protein, preferably a monomeric CD83 protein where one or more of the cysteine residues have been substituted by same or different small and/or polar amino acid residues.

8. The use of claim 7, wherein

- (i) the small and/or polar amino acid residues are selected from serine, alanine, glycine, etc., preferably is serine; and/or
- (ii) the soluble CD83 is as defined in claims 2 to 4; and/or
- (iii) one cysteine residue, preferably the fifth cysteine residue has been replaced.

9. The use of claim 7 or 8, where the soluble CD83 protein comprises amino acid residues 20 to 144 of SEQ ID NO:2, where the cysteine residue at position 129 has been replaced by a serine residue, or amino acid residues 1 to 130 of SEQ ID NO:10.

10. The use according to any one of claims 1 to 9, wherein the medicament is suitable

- (a) for the treatment or prevention of paralysis, preferably for the treatment or prevention of paralysis associated with progressive multiple sclerosis; and/or
- (b) for transcutan, intracutan, subcutan or systemic administration together with a specific antigen.

11. The use of a nucleic acid or vector having a DNA fragment encoding a CD83 protein as defined in any one of claims 1 to 9 for the production of a medicament for the treatment or prevention of a disease or medical condition caused by the dysfunction or undesired function of a cellular immune response involving dendritic cells, T cells and/or B cells.

12. The use of claim 11 wherein the DNA fragment comprises nucleotides 58 to 432 of SEQ ID NO:1.

13. The use of claim 11 or 12 wherein the medicament is suitable for downregulation on RNA and or protein level of the expression of CD83 in mammals.

14. The use of claim 1 or 11, wherein said disease or medical condition caused by the dysfunction or undesired function of a cellular immune response involving dendritic cells, T cells and/or B cells is selected from the group consisting of allergies, asthma, rejection of a tissue or organ transplant, autoimmune syndromes such as myasthenia gravis, multiple sclerosis, vasculitis, chronic inflammatory bowel diseases such as Morbus Crohn or colitis ulcerosa, HLA B27-associated autoimmunopathies such as Morbus Bechterew, and systemic lupus erythematosus, skin diseases such as psoriasis, rheumatoid arthritis, insulin-dependent diabetes mellitus and AIDS.

15. A soluble form of a member of the CD83 family of proteins (soluble CD83 protein) comprising amino acids 20 to 144 of SEQ ID NO:2, a fragment, dimeric form and/or functional derivative thereof.

16. The soluble CD83 protein of claim 15 wherein the protein further
(a) has one or more amino acid residues derived from the neighbouring intracellular domain at its C-terminus, preferably the soluble CD83 protein comprises amino acid residues 20 to 145 of SEQ ID NO:2; and/or
(b) has functional sequences attached to its N-terminus, preferably functional sequences of up to 10 amino acid residues, and most preferably carries at the N-terminus the additional amino acids Gly-Ser-Pro-Gly.

17. The soluble CD83 protein of claim 15, which comprises amino acid residues 1 to 130 of SEQ ID NO:8.

18. A nucleic acid or recombinant expression vector encoding the CD83 protein of any one of claims 15 to 17, said nucleic acid or recombinant expression vector preferably comprising nucleotides 58 to 435 of the sequence in SEQ ID NO:1, or 37-417 of SEQ ID NO:7.
19. A dimeric soluble CD83 protein as defined in claims 1, 5 or 6.
20. A monomeric soluble CD83 protein as defined in any one of claims 7 to 9.
21. A nucleic acid or recombinant expression vector encoding the CD83 protein of claim 19 or 20.
22. A prokaryotic or eukaryotic host cells transformed/transfected with a nucleic acid or a vector of claim 18 or 21.
23. A method for producing the soluble CD83 protein of any one of claims 15 to 17, 19 or 20, which comprises culturing a transferred/transfected prokaryotic or eukaryotic host cell according to claim 22.
24. A pharmaceutical composition comprising the soluble CD83 protein as defined in any one of claims 1 to 9 or 15 to 17, 19 or 20, or the nucleic acid or vector as defined in any one of claims 11 to 12, 18 or 21.
25. An antibody against a soluble CD83 protein as defined in any one of claims 1 to 9 and 15 to 17, 19 or 20.
26. The antibody of claim 25, which is raised against a soluble CD83 protein having the correct protein folding of the natural CD83 protein.
27. An assay method for in vitro determining the amount of soluble CD83 protein in the serum of a patient which comprises contacting a serum sample with the antibody of claim 25 or 26.

28. The assay method of claim 27 which is suitable for determining diseases correlated with an enhanced presence of soluble CD83 protein in the patient's serum, preferably the method for determining tumor, autoimmune diseases, viral infections, etc., including B-Cell leukemia in a patient.

29. A kit for performing the assay method of claim 27 or 28 and comprising the antibody of claim 25 or 26.

30. A method for treating or preventing a disease or medical condition caused by the dysfunction or undesired function of a cellular immune response involving dendritic cells, T cells and/or B cells comprising administering the person in need for such treatment a pharmaceutically suitable amount of the soluble CD83 protein as defined in any one of claims 1 to 9 or 15 to 17, 19 or 20, or of the nucleic acid or vector as defined in any one of claims 11 to 12, 18 or 21.